SIGNAL SEPARATION METHOD AND APPARATUS FOR RESTORING ORIGINAL SIGNAL FROM OBSERVED DATA

Abstract

The present invention provides methods and apparatus to stably separate and extract an original signal from multiple signals by a few calculation steps when multiple signals have been observed in a mixed state. In an example embodiment, signals are separated by introducing a function having a monotonously increasing characteristic like an exponential type function as a cost function, and applying an adaptive algorithm that minimizes that cost function in terms of a signal separation matrix. Then, an error signal $\underline{e}(t)$ is calculated based on $\underline{y}(t)$ formed by this nonlinear function, the estimated separation matrix $\underline{W}(t-1)$ estimated at the previous cycle, and the observed signal $\underline{x}(t)$ at that time. Then, based on the calculated error signal $\underline{e}(t)$, the update of the separation matrix $\underline{W}(t)$ at that time is performed such that consideration weight is increased when estimation errors are large using the cost function having a monotonously increasing characteristic.

[Selected Drawing] Fig. 2

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